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ABSTRACT

The process of designing Wake Technical College's campus child development center involved a team of college administrators, early childhood program staff, and an architectural consultant. The design process included a needs assessment, an interest survey, center visitations, team formation, goal refinement and clarification in brainstorming sessions, and determination of the number of children to be served and the space required for them. Teaching staff identified objectives for each center activity, space requirements, and visual and acoustic needs. The spatial inventory served as the basis for subsequent detailed planning of areas for infants, toddlers, and preschoolers. Architectural models were made of the spatial layouts, and the models were critiqued and improved. Approved models were used to revise diagrams corresponding to each activity area. Similarly, a process was developed to explore the relationship of the center's parts to its entirety. The organization of zones for outdoor play and of spatial layout, and the choice of equipment for children of various ages, were accomplished through the manipulation of zone and activity cards. Finally, the integration of classrooms and staff needs was analyzed. It is concluded that the involvement of center staff in the guided process was beneficial to both the staff and the architect. (RH)

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Participatory Programming of a Campus Child Development Facility

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The increasing demands for trained child care workers have prompted Wake Technical College to formalize a training program to help fulfill a vital community need. A fundamental component of the Early Childhood program is providing relevant experience for students in a laboratory or practicum setting, where instruction received in the classroom is enhanced by actual experience in working with children.

The children's center is similar in concept to a teaching hospital, in which fulfillment of a major role (instruction) results in the additional benefit of needed community training/demonstration site. In addition to its primary instructional role, the child development center would provide services for students, faculty, and staff with young children.

The Planning Process

Planning for the campus child care center has been developed through a formal needs assessment that has included a five-part approach:

1. Departmental planning
2. Consultation with child care experts
3. Survey of campus child care centers
4. Site visits to other child care facilities; and
5. Campus survey of student child care needs.

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From the needs assessment process it was ascertained that of the two hundred colleges and universities around the country who are members of the National Coalition of Campus Child Care, 85 percent offer or are affiliated with child care services either on or off campus. The largest population segment served by the centers was children of students, followed by children of faculty, staff, and the community. In 60 percent of the cases, child care was related to an academic department at the institution.

In 1985, a survey of 2000 Wake Technical College students indicated that 50 percent of the respondents showed an interest in a campus child care facility. Respondents reported more than 250 children under their responsibility presently receiving child care, with 32 percent of the students indicating a need for child care in the future. The highest percentage of respondents indicating a need for child care services, were full-time students, followed by part-time students.

Early in the planning process, Wake Tech staff members embarked on a program of visitations to other child care operations. The visitation team "walked through" each facility and reported on the basic features of each facility. The walk throughs consisted of a general briefing session, open-ended interviews with teachers, and observations of layout patterns of different facilities. The staff members were interested in being told about the positive and negative features of

of the facilities. The most observable problems were identified by the teachers as a lack of storage space in classrooms and in administrative offices. However, the visits helped to familiarize staff members with the issues they would encounter during the process of facility development.

A planning team was formed by the College administration which included representation from the College administration, the staff of the early childhood program, and an architectural consultant. It was at this point where the goals that had been loosely stated needed further refinement and clarification. Through a series of brain-storming sessions the following statements were generated by the planning team:

> To provide a "state-of-the-art" practicum location for students in the Early Childhood program as well as a service area for students in nursing, psychology or sociology, secretarial science and allied health programs;
>
> To respond to community needs for a training facility for the child care community, serving various levels of child care personnel, and including a parent education component;
>
> As an adjunct to its instructional mission, to provide a conveniently located quality preschool program for children of students, faculty, and staff.

Implementation goals for the campus center would be to:

Establish a reputation for providing quality care that would concentrate on fulfilling the physical, social, and intellectual needs of children.

Build a facility that would meet state standards as well as the accreditation of the NAEYC.

Offer a "visible" program that would intertwine with other departments across campus.

Provide a setting that would serve as an extension of the family through parent education that would include a toy lending library.

Basic Facility Considerations

The most important planning decision for the campus child development center is the number of children to be served in one facility. It has been found that the developmental quality of child-care services drops sharply with increases in the number of children served in one building (Kritchevsky et al., 1969). In centers which served over 60 children, major emphasis tended to be placed on rules and routine guidance. Conversely, teacher emphasis on these concerns was found to be significantly lower in smaller centers. Prescott (1975) found that large centers rarely offered children the experience of participating in wide age-range groups. Mixing of ages in smaller centers offered opportunities for older children to serve as models and enrich the overall play possibilities.

The age groups served by this center would be infants (6 weeks to 12 months), toddlers (12 months to 2 years), and preschoolers (2 to 5 years). In order to achieve the needed critical mass in each age group, a target number was agreed at a maximum of 75 children.

In addition to the total number of children in a child development center, an adequate amount of space available for children's activities is necessary to insure a quality developmentally-oriented program.

A majority of states require a minimum of 35 sq. ft. of usable play space per child, exclusive of eating, napping, circulation, closed storage, etc. Based on a review of six studies of density and behavior in child-care settings, Prescott and David (1976) recommended to the Federal Government in a commission study a minimum of 40 - 42 sq. ft. of usable floor space per child for Federal Interagency Day Care Requirements. Moore (1978) in conducting interviews as part of his travel research suggests that 40 - 45 sq. ft. per child provides a much more flexible program, options, active, and quiet pursuits happening simultaneously without disturbing each other. The most desirable social environment occurs at a density of 50 sq. ft. per child.

Activity Planning Process

This process consisted of establishing typical activity data sheets for the center (Figure 1). Each activity that infants, toddlers, and preschoolers would engage in was identified and detailed in a

similar manner by the Early Childhood teaching staff (Sanoff, 1981). The staff members currently teaching in the program identified the objectives for each activity, the space requirements, and the visual and acoustic requirements. This spatial inventory served as the basis for detailed design to follow. The data sheet also contained verbal descriptions of the particular activities that would occur in the space. The water and sand play area, for example, would include pouring, measuring, mixing and floating objects.

Since the planning of a child development center reflects a particular ideology about child development, a space planning process was organized to engage the teaching staff in layout decisions. Graphic symbols were developed to correspond with each of the children's activities (Figure 2). Based on space requirements of 50 sq. ft. per child, scenarios were developed that constrained the number of activity choices based on area requirements. The scenarios were descriptive statements about a typical children's day in the center. These scenarios permitted the staff to determine which activity areas would be fixed for different age groups. This process of determining appropriate adjacencies between activity areas helped the staff to clarify considerations of visual and acoustic privacy between activities and age groups. It also provided them with a conceptual understanding of spatial organization and spatial planning that would make the staff more effective when evaluating architectural alternatives.

The teaching staff worked on the spatial layout for different age groups beginning with the infants, the toddlers, and the preschoolers. Together they outlined the flow process from entering the facility to greeting the

child through the manipulation of the symbols. When group members agreed to a set of relationships, they glued the symbols to the base, thus representing their decision. The architect then constructed cardboard scale models corresponding to the flow patterns for different age groups of each of the areas of the facility. This second stage of the process permitted the teaching staff to reconsider their earlier decisions when they saw the conflicts that arose as their decisions took a more concrete form. Although circulation between activity areas was considered during the process of examining children's flow through the classroom, the model clearly conveyed the need to establish clear boundaries between particular activities that prevented the child's distraction but permitted the care-giver an unobstructed view of all children's areas.

Although the three models included information such as furniture and equipment that was not a result of the symbol diagrams, the parts were all movable and easily manipulated by the staff members. The activity data sheets provided a ready reference as the modifications were made to the model. When agreement to the best classroom arrangement was reached, the form diagrams corresponding to each activity area were organized to reflect the changes (Figure 3). Although abstract in nature, the diagrams permitted the staff members to gain a clear conceptual understanding of all activity relationships in order for them to effectively evaluate the forthcoming building concepts.

In a similar manner a process was developed to explore the relationship of the parts to the whole. Each of the facility's primary activities

were identified and listed by the staff and designer. The list contained all the basic areas for the children's center beginning at the "drop-off" and including the children's protected outdoor area.

The list was organized into a matrix where staff members made decisions about the location of the major parts of the facility (Figure 4). The activities generated from the analysis of the children's flow processes, which tracked the different age groups through the facility, were rated on the basis of privacy and closeness or proximity to each other. This diagram guided the development of the building plans though staff members found difficulty in responding to the spatial implications of plan drawings. While they could follow the organization of the classroom, they could not visualize how the "two dimensional boxes" might appear nor the implications of how the classrooms were connected. The continual reference to scale models and perspective drawings enabled the staff to effectively contribute to the design development stage of the building process.

Planning Outdoor Play

Planning the outdoor play areas required an integration of the commonly catagorized forms of social and cognitive development with motor development in order that the outdoors could function as an extension of the classroom. Since the various forms of social play are accommodated by quiet places and cooperative and socio-dramatic play, the need for zoning the play area within and between age groups was necessary. Zoning is a method of identifying the types of play that would be defined by

boundaries that set them apart functionally and visually. The space within and between the zones would be arranged to encourage children's movement, except where the infant-toddler would be fenced off from the older children's area. The preschoolers, for example, would have eight zones in their play area, such as creative play, open play, dramatic play, private play, informal play, sand/water play, animals, planting and large muscle play. The organization of the zones, spatial layout, and equipment choices for various age groups was accomplished through the manipulation of zone and activity cards (Figure 5).

Since the child development facility has a teaching function, the integration of classrooms and staff needs also required careful analysis. It was necessary to create a setting that enabled the free flow of teachers and students into the children's center which served as a laboratory supplementing classroom instruction.

Conclusion and Discussion

The process embarked upon by the staff and the architect is clearly a departure from the traditional approach to facility development which usually denies the expertise of the user and their involvement in design decision making. Traditional designers also focus on the formal and visual issues and give less attention to the behaviorial issues that can influence the solution. In this project, the architect provided a clear structure which enabled the child development staff to lend their expertise to the initial programming stages of the process. Using activity data sheets, activity symbols, and form diagrams permitted the architect

to integrate the knowledge about children's behavior and requirements into a format that was conducive to making space planning decisions.

Involving the expertise of the staff in this guided process helped them to see linkages between child development goals and the types of places where these goals could be fulfilled. Their continual involvement in the process of designing the building encouraged the exchange of ideas and concepts with the architect which facilitated the staff's ability to be effective design team members.

Although it has been shown that people who participate in design decisions have greater satisfaction from their involvement (Schwartz, 1978), it is evident from this experience that the dynamics of participatory process and product are different than the results of a more traditional design process.

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*The architectural team included Henry Sanoff, AIA, and Jim Utley.

Preschool

Water Play
Sand

Water and sand are both flexible materials and offer a wide variety of learning experiences for preschool children. Pouring, measuring, and coloring are just a few ways these can be used for tools of learning. Floating toys, blowing bubbles and mixing water with other mediums to create objects all develop hand-eye coordination. Building in wet sand teaches children about its unique qualities. The area is designed specifically for this type of particular activity and able to accommodate up to four children comfortably with provisions for individual play.

Objectives

Sensory and concept development
Opportunity for soothing/active play
Socialization, Visual-motor skill development

Equipment

	Storage Open	Closed
Water table with drain and cover	•	
Water play toys and manipulatives	•	
Water proof smocks	•	
Towels and floor protection	•	
Vertical display for concept development		
Container for sand		

Notes

Natural lighting
Well ventilated

100 square feet

Acoustical level-Moderate
Visual access to other areas

Figure 1. Typical Activity Data Sheet

Infant

Figure 2. Graphic Symbols Used to Organize the Infant Area

Figure 3. Form diagrams showing the relationship between activity centers in the infant area

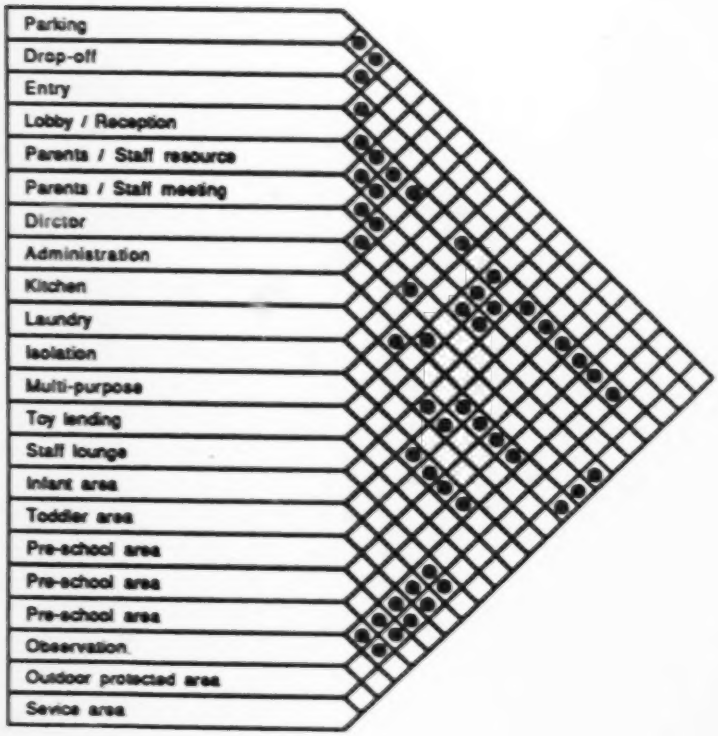
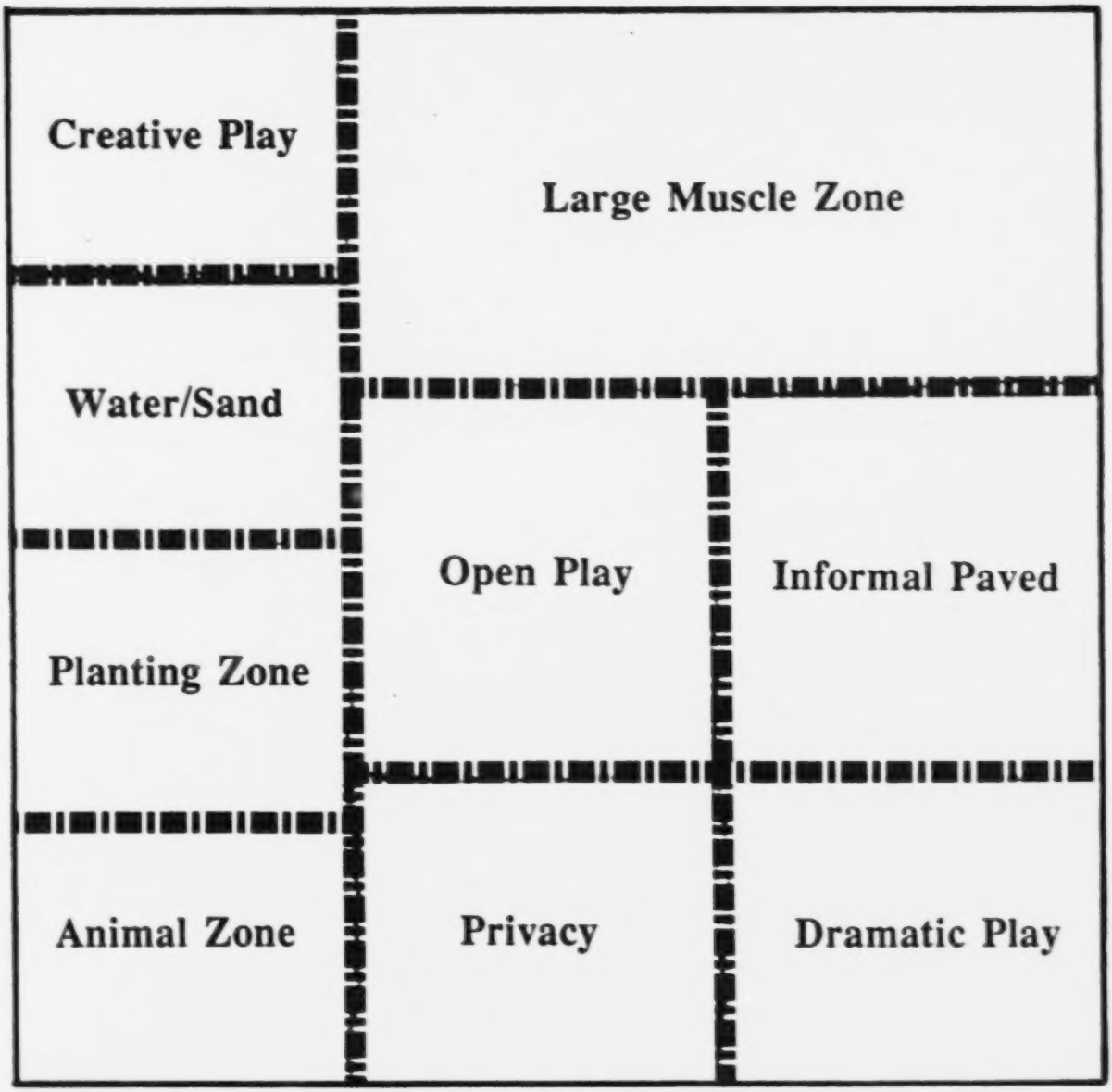


Figure 4. Matrix of relationships between all parts of the children's facility



Preschool Outdoor Play

Activity Zones
2800 square feet
14 children @ 200 sq.ft./child
Based on "three year old" requirements.

Figure 5A. Zone Layout for Preschool Outdoor Play Area

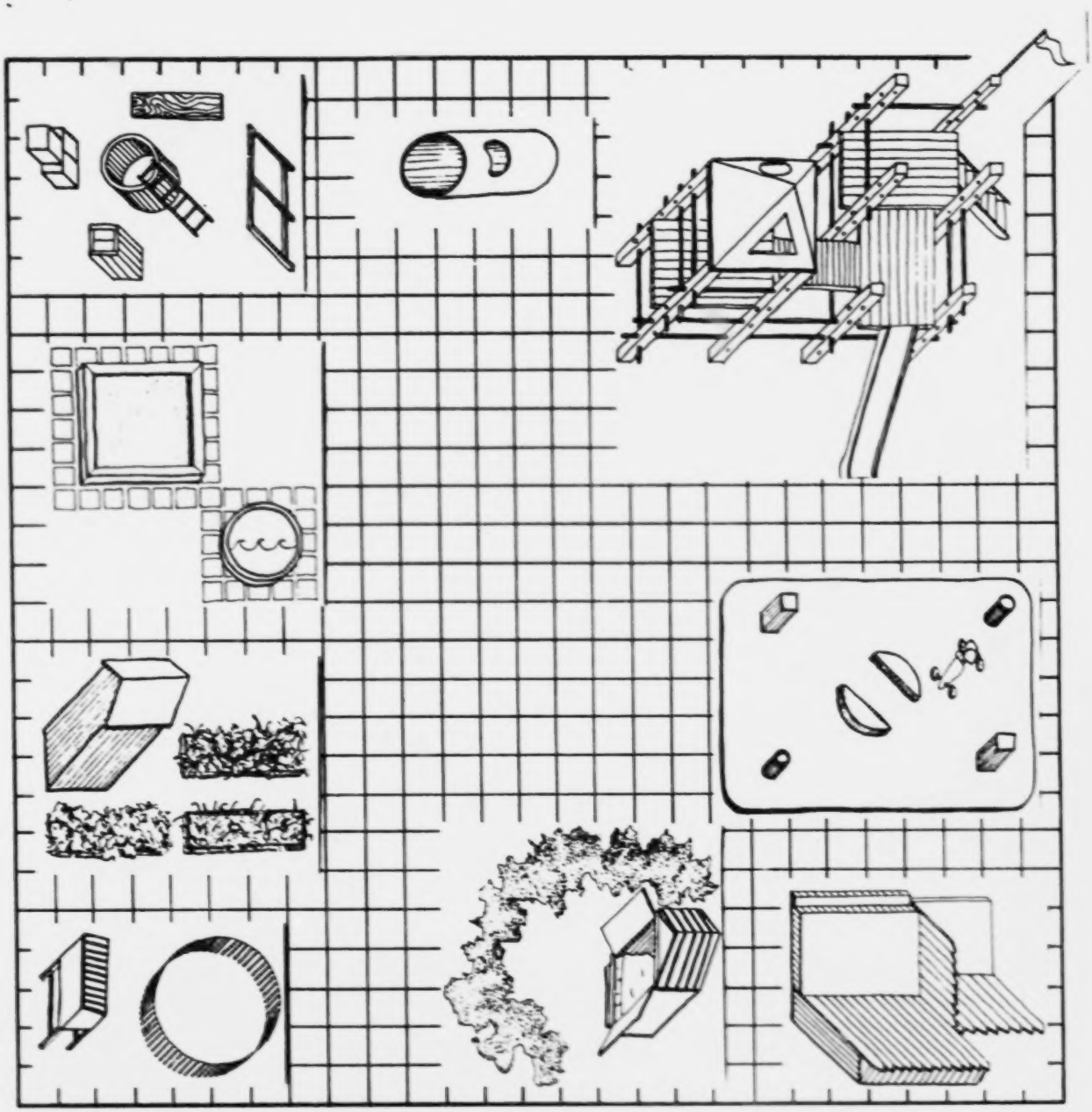


Figure 5B. Equipment Layout for Preschool Play Area